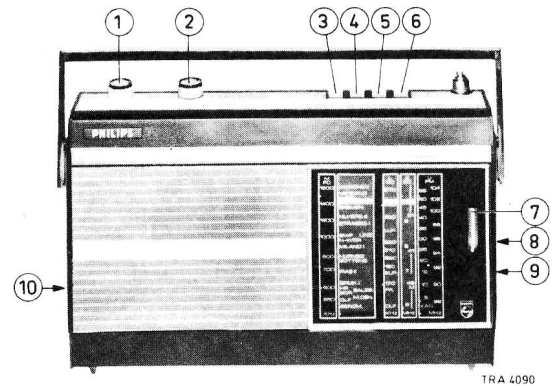



# Service manual



TRA 4090

# PHILIPS



①	Volume control+on/off switch Volumeregelaar+aan/uit-schakelaar R37 Contrôle de volume+interrupteur + Lautstärkeregler+Ein/Aus-Schalter SK-E Comando di volume+interruttore	⑤	SW-switch KG-schakelaar Commutateur OC KW-Schalter Commutatore OC	SK-B	⑦	Tuning Afstemming Syntonisation Abstimmung Sintonia	C7,9 C27,45	
②	Tone control Toonregelaar Contrôle de tonalité R41 Klangregler Comando di tono	⑥	FM-switch FM-schakelaar Commutateur FM UKW-Schalter Commutatore FM	SK-A	⑧	Earphone connection Oortelefoon-aansluiting Prise écouteur Ohrhöreranschluss Presa ricevitore		
③	LW-switch LG-schakelaar Commutateur GO LW-Schalter Commutatore OL	SK-D	⑤ + ⑥	Switch Schakelaar Commutateur Schalter Commutatore	SK-B + SK-A	⑨	Connection Aansluiting Prise Anschluss Presa	
④	MW-switch MG-schakelaar Commutateur PO MW-Schalter Commutatore OM	SK-C				⑩	Ext. supply connection Ext. voedingsaansluiting Prise d'alimentation ext. Anschluss ext. Speisung Presa alimentazione esterna	

Battery voltage	9 V (6x1.5 V)	Batterijspanning	Tension de pile	Batteriespannung	9 V (6x1,5 V)	Tensione batteria
External supply	9 V	Externe voeding	Alimentation externe	Ext. Speisung	9 V	Alimentazione esterna
Consumption (without signal)	AM: 22 mA FM: 26 mA	Verbruik (zon- der signaal)	Consommation (sans signal)	Verbrauch (ohne Signal)	AM : 22 mA FM : 26 mA	Assorbimento (senza segnale)
Output	1 W	Uitgangsvermo- gen	Puissance de sortie	Ausgangsleistung	1 W	Potenza di uscita
Loudspeaker	Z = 8 Ω	Luidspreker	Haut parleur	Lautsprecher	Z = 8 Ω	Altoparlante
IF	AM : 452 kHz FM : 10,7 MHz	MF	FI	ZF	AM : 452 kHz FM : 10,7 MHz	FI
Dimensions	300x177x69 mm	Afmetingen	Dimensions	Abmessungen	300x177x69 mm	Dimensioni

## Wave ranges - Golfgebieden - Gammes d'ondes - Wellenbereich - Gamme d'onda

LW-LG-GO-LW-OL	: 150 - 255 kHz (2000 - 1177 m)
MW-MG-PO-MW-OM	: 519 - 1605 kHz ( 578 - 187 m)
SW-KG-OC-KW-OC	: 5.95 - 9.775 MHz ( 50.42 - 30.7 m)
FM	: 87.5 - 104 MHz

## Transistors

TS1 - AF124	TS6 - BC148B
TS2 - AF124	TS7 - AC132
TS3 - AF121	TS8 - AC187K
TS4 - AF121	TS9 - AC188K
TS5 - AF121	

## Diodes

D1 - AA119
D2 - AA119
D3 } - 2xAA119
D4 }
D5 - AA119








































Index: CS28535-CS28538, CS26736, CS28539

Subject to modification

4822 725 10677

Printed in the Netherlands



SK.... (Wave range)	 (Signal to)		 (Var. cap.)	 (Adjust)	 (Output)	
MW (519-1605 kHz)	452 kHz	via 33 nF	  	Min.		Max. 
	453,25 kHz					
	450,75 kHz				 	
MW (519-1605 kHz)	508 kHz		Max.  Min. 		Max. 	
	1640 kHz			C46		
	600 kHz			S12-13		
	1500 kHz			C28		
LW (150-255 kHz)	147 kHz		Max.  	C48		
	170 kHz			S14-15		
	260 kHz			C25		
SW (5.95-9.775 MHz)	5.85 MHz		Max.  Min. 			
	10 MHz			C34		
	6 MHz					
	9.7 MHz			C24		
FM (87.5-104 MHz)	10.7 MHz (50 Hz- Δf:200 kHz) via 5 nF		Min.			
						
						
						
						
		FM (87.5-104 MHz)		87 MHz		Max.  Min.  Max.
105 MHz	C8, C6					
87 MHz	 , S3					
Repeat - Herhalen - Répéter - Wiederholen - Ripetere						

GB

- 1 Damp coil G with 330 Ω.
- 2 Tune the set.
- 3 Open bridge A. Remove core of coil F. Connect oscilloscope to point 2.
- 4 Reconnect bridge A. Connect oscilloscope to point 3.
- 5 Adjust band-pass curve for maximum height and symmetry.
- 6 Adjust S-curve for maximum symmetry.

D

- 1 Spule G mit 330 Ω dämpfen.
- 2 Gerät abstimmen.
- 3 Brücke A öffnen. Kern von Spule F herausdrehen. Oszillografen an Punkt 2 anschliessen.
- 4 Brücke A wieder schliessen. Oszillografen an Punkt 3 anschliessen.
- 5 Durchlasskurve auf maximale Höhe und Symmetrie abgleichen.
- 6 S-Kurve auf maximale Symmetrie abgleichen.

NL

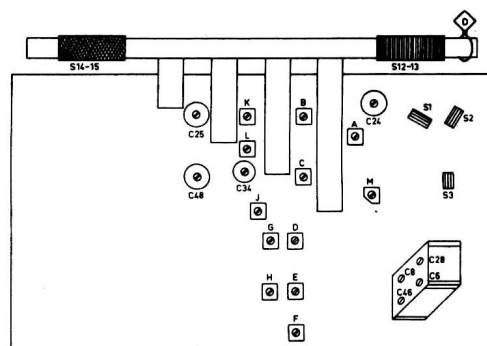
- 1 Spoel G dempen met 330 Ω.
- 2 Apparaat afstemmen.
- 3 Open brug A. Kern van spoel F uitdraaien. Oscilloscoop aansluiten op punt 2.
- 4 Brug A weer sluiten. Oscilloscoop aansluiten op punt 3.
- 5 Doorlaatkromme afregelen op max. hoogte en symmetrie.
- 6 S-kromme afregelen for maximum symmetrie.

I

- 1 Attenuare la bobina G con 330 Ω.
- 2 Sintonizzare.
- 3 Aprire il ponticello A. Togliere il nucleo della bobina F. Collegare l'oscilloscopio sul punto 2.
- 4 Chiudere il ponte A. Collegare l'oscilloscopio sul punto 3.
- 5 Regolare la curva passa-banda per simmetria e altezza massima.
- 6 Regolare la curva S per simmetria massima.

F

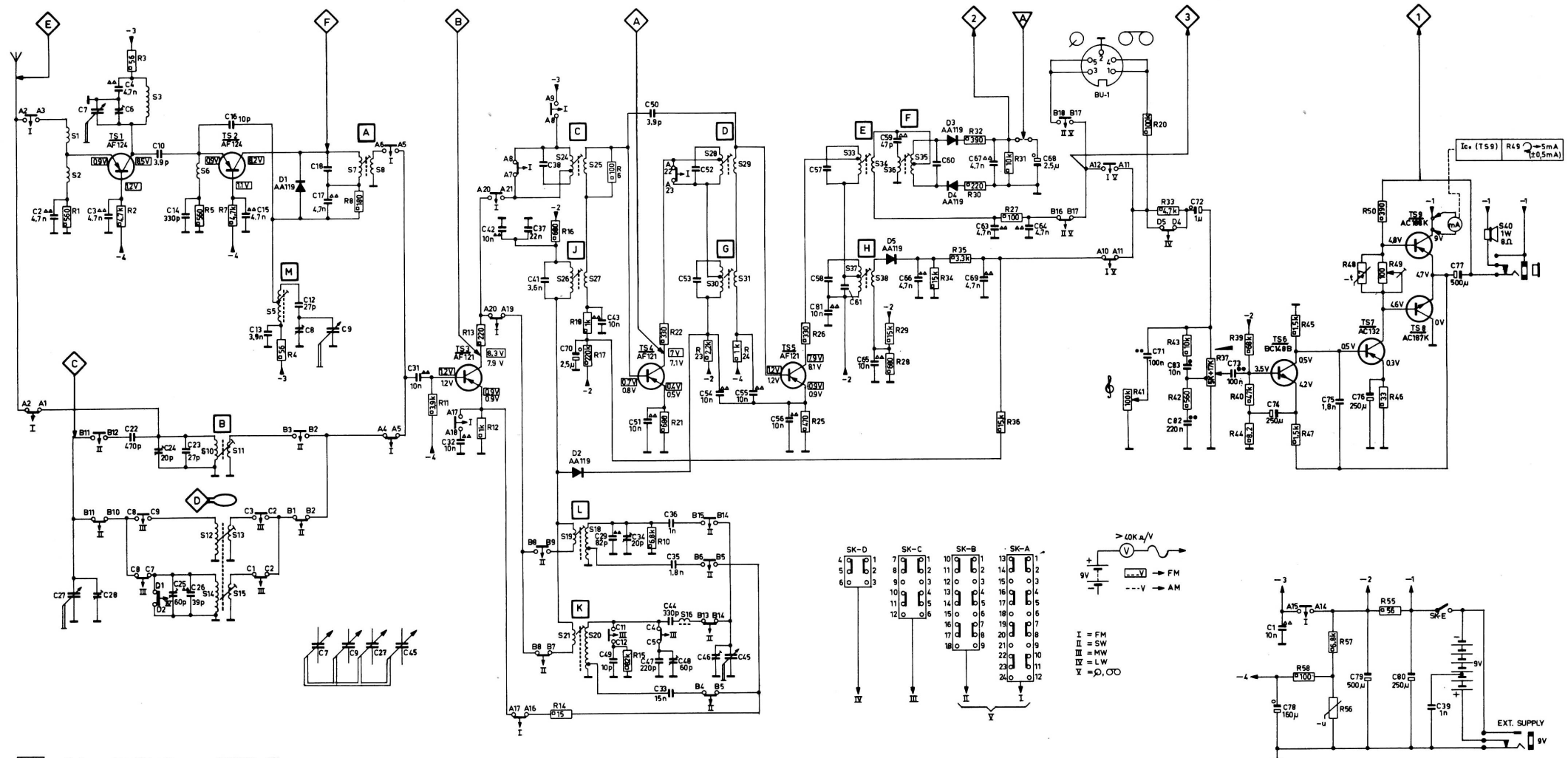
- 1 Atténuer la bobine G avec 330 Ω.
- 2 Syntoniser.
- 3 Ouvrir le pont A. Oter le noyau de la bobine F. Connecter l'oscilloscope au point 2.
- 4 Refermer le pont A. Connecter l'oscilloscope au point 3.
- 5 Régler la courbe passe-bande sur hauteur et symétrie maximales.
- 6 Régler la courbe S sur symétrie maximale.



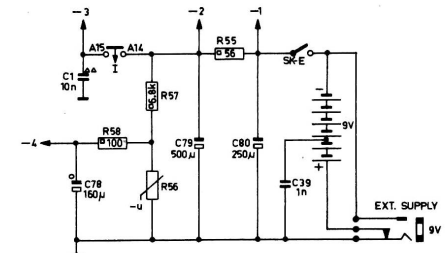
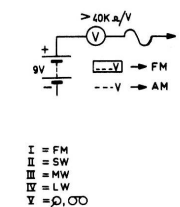
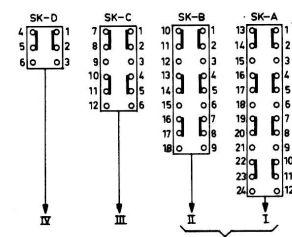


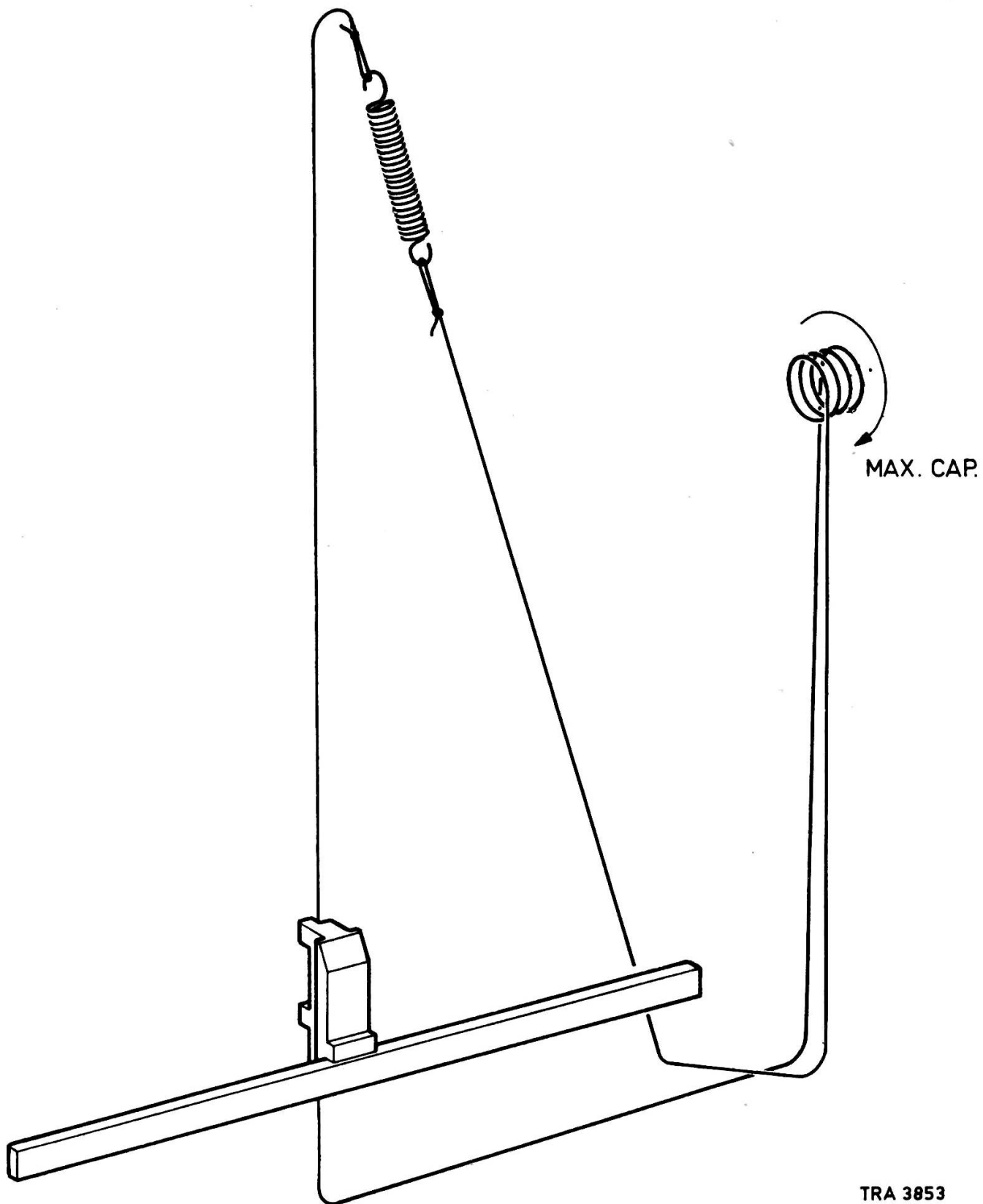
Wiring example: Wire  $\textcircled{\text{D}}_2$  (mentioned under unit A) leads to unit D, and is then mentioned  $\textcircled{\text{A}}_2$

S	1 2		3			6 10+15			5		7 8			24+27 18+21				16				28+31				33+38																				40																													
C	2	27	7 28		3	4	6	22	24	10	25	14	23	26	16	15	13	12 8			18	17	9	31		32		37 42 41 38				70	43 29 49 34 51 47				50	35	44	48	33	52	53	54	46	45	95	56	57 58		81	61	65	59	66	60	69 63 67		64	68	71		83	82	72	73	74 1		78	75	79	76	80	39	77
R	1		2 3		5			7	4		8			11		13 12		14		16		18 17		6	15	10		21 22		23		24		25 26		29 28		34		35		32 30		36		31		27		41 20 33 43 42 37 39 40 44 45 47 58 57 56 48 50 49 46 95																									

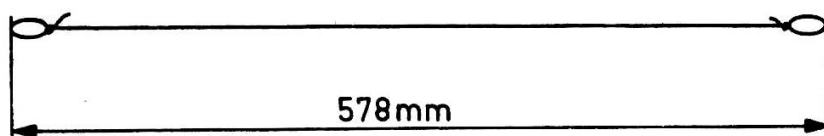


- Carbon resistor E24 series 0.125 W 5%
- Plate ceramic capacitor
- Polyester capacitor 400 V
- Flat-foil polyester capacitor
- Paper capacitor 1000 V



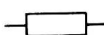






TRA 3853





-S- 			-C- 		
S1,2      4822 157 40017      (abcd) S5        4822 156 40102 S6        4822 157 50045 S7,8      4822 153 50109 S10,11    4822 156 40315      (11.0) S12,13,14,15    4822 158 60276 S16        4822 526 10016 S18,19    4822 156 30094      (66.. S20,21    4822 156 30081      (14.. S24,25    4822 153 50109 S26,27    4822 156 40552 S28,29    4822 153 50109 S30,31    4822 153 10229 S33,34    4822 153 50111 S35,36    4822 153 50112 S37,38    4822 153 10231 S40        4822 240 40055			C6,7,8,9      4822 125 40011 C27,28,45,46 C10        4822 122 30003      3.9 pF - 63 V - 0.25 % C12        4822 122 40004      27 pF - 500 V - 5 % C13        4822 122 30098      3.9 nF - 400 V - 10 % C14        4822 121 50385      330 pF - 63 V - 2.5 % C16        4822 122 30006      10 pF - 63 V - 2 % C22        4822 121 50413      470 pF - 63 V - 2.5 % C23        4822 122 30045      27 pF - 63 V - 2 % C24        4822 125 50045      20 pF - Var. cap. C25        4822 125 50039      60 pF - Var. cap. C33        4822 122 30106      15 nF - 63 V - 20 % C34        4822 125 50045      20 pF - Var. cap. C35        4822 122 30048      1.8 nF - 40 V - 10 % C36        4822 121 50424      1 nF - 63 V - 2.5 % C37        4822 120 40143      22 nF - 160 V - 10 % C39        4822 120 10107      1 nF - 500 V - 10 % C41        4822 121 50088      2.6 nF - 63 V - 2.5 % C44        4822 121 50385      330 pF - 63 V - 2.5 % C47        4822 121 50033      243 pF - 63 V - 1 % C48        4822 125 50039      60 pF - Var. cap. C49        4822 122 40066      10 pF - 5 % C50        4822 122 30003      3.9 pF - 63 V - 0.25 % C74        4822 124 20396      220 μF - 10 V C75        4822 122 30048      1.8 nF - 40 V - 10 % C76        4822 124 20396      220 μF - 10 V C77        4822 124 20406      470 μF - 16 V C79        4822 124 20406      470 μF - 16 V		
-R- 					
R37        4822 101 50147      5+17 kΩ - log. R41        4822 101 30246      100 kΩ - log. R44        4822 111 30335      8.2 Ω - 5 % - 1/8 W R48        4822 116 30078      47 Ω - NTC - 20 % R49        4822 100 10075      100 Ω R56        4822 116 20063      VDR - 1.35 V - 10 %					
-TS- 		-D- 			
TS1,2      4822 130 40255 TS3,4,5    4822 130 40385 TS6        4822 130 40318 TS7        4822 130 40237 TS8 }      4822 130 40319 TS9 }		D1,2      4822 130 40229 D3 }      4822 130 30312 D4 } D5        4822 130 40229			